Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	
Commission's Rules To Ensure	)	CC Docket No. 94-102
Compatibility with Enhanced 911	)	RM-8143
Emergency Calling Systems		

E-911 Phase II Technology Report

ALLTEL Communications, Inc[1].

TRS 806258

ALLTEL Communications, Inc. ("ALLTEL"), files this report pursuant to the requirements of the Commission's Third Report and Order ("E911 Third Report and Order")[2] as modified by the Fourth Memorandum Opinion and Order ("E911 Fourth Memorandum Opinion and Order")[3], and further clarified in the Commission's Public Notice dated September 14, 2000 *("*E911 Report Guidance*")*[4].

[1] ALLTEL Communications, Inc. files this report on its behalf and on behalf of its various FCC licensed subsidiaries and affiliates, including those licensee companies affiliated with ALLTEL Communications, Inc. by virtue of their common ownership and ultimate control by ALLTEL Corporation.

[2] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Third Report and Order, FCC 99-245, released October 6, 1999 (*E911 Third Report and Order*), adopting and revising 47 C.F.R. §§ 20.18(e)-(k).

[3] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Fourth Memorandum Opinion and Order, FCC 00-326, released September 8, 2000 (*E911 Fourth Memorandum Opinion and Report*).

[4] Wireless Telecommunications Bureau Provides Guidance on Carrier Reports on Implementation of Wireless E911 Phase II Automatic Location Identification**,** Public Notice, DA 00-2099. Released September 14, 2000.

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II. Introduction

Recognized as a leader in wireless communications, ALLTEL has more than 15 years of experience in providing its subscribers with innovative wireless services, including paging, cellular and PCS. While historically a predominantly rural carrier, ALLTEL in recent years has experienced explosive growth as a result of its aggressive acquisition of markets across the country. In addition to its merger with 360° Communications Company, ALLTEL has also recently completed transactions to acquire Nebraska-based Aliant Communications, Kansas-based Liberty Cellular and Louisiana-based Radiofone, Inc. Further, in mid-2000, ALLTEL consummated the transfer of wireless interests between ALLTEL, Bell Atlantic and GTE in 13 states. In addition to increasing ALLTEL's wireless customer base, these transactions provided ALLTEL access to a nationwide digital footprint covering 95 percent of the United States population. These and smaller acquisitions in Alabama and Colorado have dynamically expanded ALLTEL's geographic footprint. ALLTEL is committed to providing the best and most accurate enhanced 911 wireless telecommunications solutions to its entire subscriber base whenever and wherever a subscriber may be located within the geographically diverse coverage areas of Alltel's systems. ALLTEL is consequently pleased to update the Commission as to its current plans for the deployment Phase II E-911 capabilities.

[5] ALLTEL acknowledges the invaluable assistance and the contribution of Bjorn Hjelm of ALLTEL's engineering staff in the preparation of this report. Mr. Hjelm is available to address any technical issues and may be contacted through the indicated contact.

III. Overview of ALLTEL's Wireless Network

ALLTEL serves over 6 million wireless customers in 22 states. The geographic coverage areas of the ALLTEL systems are diverse and include open rural areas, mid-size cities, and metropolitan cities. ALLTEL employs wireless infrastructure equipment from multiple vendors making interoperability among network elements a high priority. ALLTEL utilizes CDMA as its choice of digital technology. At present, all digital ALLTEL markets utilize CDMA or are in the process of converting to the technology. ALLTEL is also implementing an ambitious migration of its systems to ANSI 41.

IV. Methods for Providing Location Information for Wireless 911 Calls

a. Network-based Solution. A network-based solution is an overlay network where the location sensor resides in the network and additional equipment is installed at the cell site. All options – Angle of Arrival (AOA), Time Difference of Arrival (TDOA), or Fingerprinting – of network-based solutions rely on a signal transmitted from the handset to multiple fixed base stations to determine the position of the handset.

b. Handset-based Solution. Handset-based solution requires modifications to the handset, such as Advanced Forward Link Triangulation (A-FLT) or Global Positioning System (GPS) capability. The GPS capability can be divided into stand-alone and network assisted systems. A handset equipped with GPS capability references a constellation of 24 GPS satellites that circle the earth every 12 hours to determine its current position. In a network assisted GPS system, information from additional ground-based, or terrestrial, transmitters is used to shorten the time to locate, and increase the accuracy of the handset position.

V. ALLTEL E911 Activities

ALLTEL has been actively evaluating and pursuing possible solutions to provide enhanced 911 wireless service. The following is a list of some of the initiatives undertaken by ALLTEL:

- Internal technical research and evaluation since 1996 culminating in a comprehensive Technology Assessment Report. Over the period of 1997 - 1999, ALLTEL engaged in activities to identify applicable location technologies, companies/vendors developing location technology, and the assessment of these technologies. In this report, technologies and products were assessed for their capability to provide E911 Phase II and commercial location services. As of the conclusion of 1999, few comprehensive trial results were available, and consequently, the assessment was largely qualitative in nature. Timelines and next steps were identified and it was recommended that both network and handset based technologies be pursued. However, the focus was to be on handset based technology given the results of the qualitative technology assessment and the technology's promise for delivering the most accurate location information in the largest variety of situations.

- Since 1997, ALLTEL monitored and participated in Industry Groups, including SnapTrack CDMA Test Group (STCTG)[6] and CDMA Development Group (CDG) Location Team[7] as well as monitored standards activities related to E911.
- Location Technology Simulations. As a part of the technology assessment conducted by ALLTEL, two vendors were asked to perform location accuracy and coverage simulations for a sample market based on actual operating parameters. While the results of these simulations are subject to non-disclosure agreements (NDAs) between ALLTEL and the vendors, the following conclusions were arrived at: 1) the near-far effects of reverse link TDOA technology result in location coverage holes; 2) cell sites located along a traffic corridor result in reduced triangulation accuracy due to GDOP; 3) GDOP is a general problem for reverse link TDOA solutions because the cellular network was built to provide voice Erlangs, not location accuracy. AOA was never considered as a widespread solution because of the difficulty and environmental consequences attendant to adding additional antenna towers.
- Request for Information (RFI) from the supplier community. The RFI was distributed to 23 suppliers of infrastructure and handset products in February 2000, requesting information about location technology for E911 wireless services and in particular, accuracy, interoperability, availability and cost of equipment. Though the suppliers receiving the RFI included handset suppliers, an additional RFI was sent specifically to handset vendors in mid-July seeking commitments on the availability of ALI-capable handsets.
- Request for Proposal (RFP) from the supplier community. The RFP was distributed to 13 suppliers providing network- or handset-based (Assisted GPS) solutions in August 2000. Since the responses from the RFI did not adequately address all of ALLTEL's concerns, the RFP supplemented the questions posted in previous the RFI with detailed questions about technical performance, interoperability, trial procedure and deployment as well as an update on current product status.

[6] The industry forum, with representation from handset, infrastructure and component manufactures as well as wireless carriers, was established in the Spring 1998 to demonstrate and evaluate the technological feasibility, performance and cost of using SnapTrack's GPS-based location software for wireless CDMA handset-based location determination.

[7] The CDG has been involved in activities to ensure that location technology is available to carriers in time to meet the FCC E911 location mandate, including proposing system interface and handset standards requirements.

VI. E911 Phase II Location Technology Information

a.) Overview - Technology Plan

The choice of technology is enormously difficult due to the newly defined accuracy standard.[8] Phase II E-911 deployment will require a significant capital expenditure on the part of the carrier to fulfill the E911 Phase II mandate, particularly since the existence of carrier cost-reimbursement mechanisms are no longer a prerequisite to E-911 Phase II deployment. Several suppliers project the possible growth of location-based services as a way of recouping the capital expenditures of deploying location technology for E-911,[9] but to ALLTEL's knowledge, no standards exist to provide location-based services (LBS) with similar accuracy requirements across different air interfaces.[10]

Below is a summary of the various options available to provide enhanced 911 wireless service available to ALLTEL given the status of the particular technology and the results of technology assessments, simulations and information from suppliers and vendors.

1) Network-Based Solution - Triangulation Based

- The solution has been tested for various air-interfaces and is able to locate (Automatic Location Identification) ALI- and non-ALI-capable handsets.
- Rural cell cites are typically geographically dispersed and "link-limited" in coverage. Due to the reverse link power control algorithm used in CDMA it is difficult for the mobile signal to be received at three cell sites to achieve triangulation in these rural areas. Furthermore, in rural markets, cell sites tend to be built along traffic corridors resulting in poor triangulation accuracy due to Geometric Dilution of Precision (GDOP). A significant part of ALLTEL's network covers rural areas.
- Neither adding more tower sites nor direction-finding antennas are feasible options due to the environmental concerns attendant to additional tower construction. Tower loading, local zoning, cost factors, timing and other issues must also be considered.

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[8] *Ex Parte* filing by Nortel Networks, September 26, 2000.

[9] In a meeting with FCC, Grayson Wireless indicated that their solution "supports Location-Sensitive Value-Added Services for Carrier Cost Recovery" (*Ex Parte* filing by Grayson Wireless, June 8, 2000). It was further argued by TruePoistion that "commercial location services, which are non-existent today, are forecast to grow rapidly" (*Ex Parte* filing by True Position, July 24, 2000).

[10] *Ex Parte* filing by Nokia, June 19, 2000. Additionally, ALLTEL notes the numerous issues associated with the commercial application of subscriber location information including, perhaps most significantly, the carrier's duty to protect confidential subscriber information (including CPNI) from disclosure to other parties pursuant to section 222 of the Communications Act of 1934, as amended.

- Though trials have been conducted, the focus has been to verify the technology and not address any possible interoperability issues between the different network elements contained within ALLTEL's network.
- Though the majority of the suppliers offering a network-based solution argue that the solution is readily available, the impact of the amount of equipment requests on deployment time has not been adequately addressed.[11]

2) Network-Based Solution - RF Fingerprinting

- This solution requires extensive maintenance and drive testing.
- Extensive calibration is required which is extremely difficult in rural areas with few roads.
- This solution is best suited as a Service Bureau.

3) Network-Based Solution - Forward Link Triangulation

- This solution does not meet the accuracy requirements set forth by the Commission, but may provide a cost effective reasonable solution for legacy handsets and systems with FCC concurrence.

4) Handset-Based Solutions (including GPS and Hybrids)

- Provides ubiquitous geographic coverage over the entire network for subscribers equipped with ALI-capable handsets. Heavily shadowed and multipath environments in dense urban areas present a challenge to meeting the accuracy requirements.
- Requires less infrastructure changes, which will minimize potential interoperability testing and problems between different location-based product suppliers as well as between location-based product and infrastructure product suppliers. Provides a more centralized approach and superior operations and maintenance qualities.
- Minimizes deployment time of infrastructure equipment needed to support enhanced 911 wireless services.
- Only ALI-capable handsets can be located with Phase II accuracy, requiring deployment of ALI-capable handsets. Most products provide location of legacy handsets to varying levels of accuracy below the Phase II requirements.

[11] Though Grayson Wireless indicated that they are "capable of manufacturing sufficient equipment such that wireless carriers meet the Commission's implementation deadlines" in an E*x Parte* on June 20, 2000, no maximum production numbers were mentioned or guarantees offered.

- Requires almost line-of-sight path to GPS satellites. This can be aided by using ground-based transmitters, such as in the network assisted system. Similar assistance will also minimize the Time To First Fix (TTFF).
- Will best serve ALLTEL's rural customer base.

b.) Discussion, and Technology Choice

Based on ALLTEL's geographically diverse coverage areas, ALLTEL currently plans to deploy a network-assisted handset-based solution (hereafter "Assisted GPS" or "AGPS") in all of its service territories. This solution offers the greatest accuracy in the largest variety of environments. The major reason for not relying on a network-based solution is the problem (highlighted above) of coverage along highway "corridors" and in rural areas.[12] There are also practical and yet unresolved questions concerning network-based solutions such as those noted by Sprint[13] and serious issues as to the interoperability between various network-based location technology products and ALLTEL's multi-vendor infrastructure. The performance of GPS, however, has proven to be very accurate in a variety of settings.[14] The accuracy of this solution was further enhanced with the termination of Selective Availability by the military on May 1, 2000.[15]

c.) Description of the Technology

The AGPS solution follows the reference model in J-STD-036,[16] requiring ANSI-41 capability in the network as well as support of IS-801 messages. Figure 1 shows the reference model for an AGPS solution.

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[12] TruePosition, a network-based solution vendor, informed the FCC that "it is highly unlikely that network-based technologies in rural areas can satisfy the Commission's existing accuracy requirements for wireless E911 unless carriers are required to undertake very substantial expenditures for this purpose." (TruePosition E*x Parte* presentation in CC Docket No. 94-102, July 24, 2000.)

[13] Sprint PCS indicated, besides the difference in performance between different environments, that one of the difficulties in deploying a network-based solution is the lack of physical room in base stations. (Summary of FCC E911 Phase II Reconsideration Proceeding Multi-Party Meeting June 29, 2000, July 24, 2000.)

[14] Walter Bell, Vice President of Engineering, SnapTrack, Inc. presented data that suggested good accuracy using GPS during the FCC E911 Automatic Location Identification Technical Roundtable, June 28, 1999. The result from the trial in Tampa, Florida (*Ex Parte* filing of SnapTrack, Inc., June 2, 1999) and other trials ("Lucent-QUALCOMM 'Hybrid' Solution For Location Based Services," presented at the CDG Location Technology Forum, May 17, 2000, New Jersey) also supports the viability of the handset-based solution using GPS.

[15] Data collected on May 2, 2000, by the U.S. Space Command indicated circular error of 2.8 meters and a spherical error of 4.6 meters. The data is available on-line from the Interagency GPS Executive Board (IGEB) at URL: http://www.igeb.gov/sa/diagram.shtml.

[16] Figure 3-1 on page 3-3 in TIA TR-45 J-STD-036, "Enhanced Wireless 9-1-1 Phase 2," July 2000.

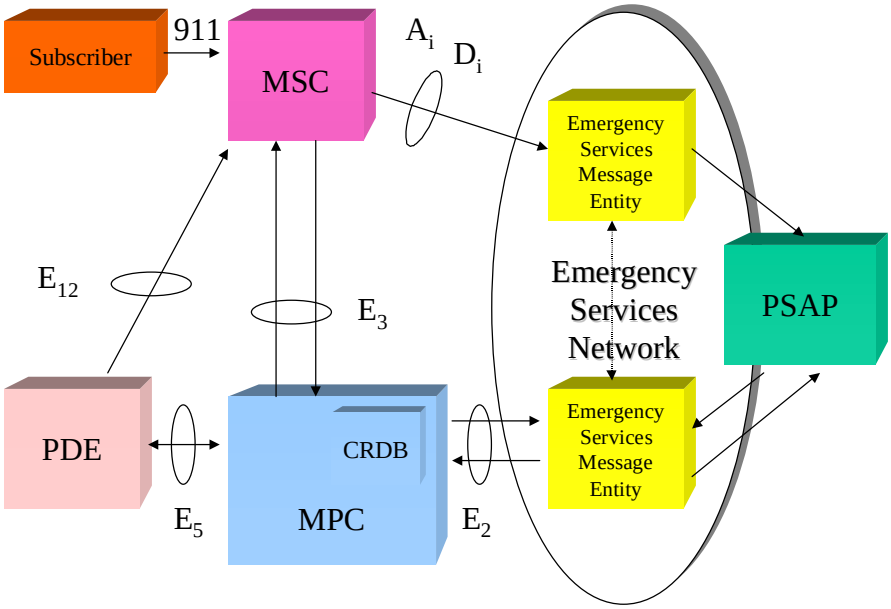

Figure 1. Reference Model for Enhanced 911.

Interface	Functional Entities	Protocol	Message(s)
A_iD_i	MSC - ESNE	FG-D, ISUP	IAM
E_2	MPC - ESME	ESP	EmergencyServicesPositionRequest
E_3	MSC - MPC	ANSI-41	InterSystemPositionRequest OriginationRequest CallTerminationReport SMSDeliveryToPoint
E_5	PDE - MPC	LSP or ANSI-41	GeoPositionRequest GeoPositionDirective SMSDeliveryPointToPoint
E_{11}	CRDB - MPC	LSP	PositionRouteRequest
E_{12}	MSC - PDE	ANSI-41	SMSDeliveryPointToPoint InterSystemPositionRequest

Table 1. Messages Across Network Interfaces.

The Telecommunications Industry Association (TIA) TR45.2 standards committee examined the issues and technologies related to wireless E911deployment and concluded that the basic functionality necessary to implement Phase II should use Non Call-path Associated Signaling (NCAS) in order to: 1) meet all 911 situational contingencies; and 2) be implemented in the Intelligent Network (IN) on a Service

Control Point (SCP). The logical element interfacing to the Positioning Determining Equipment (PDE) and residing on the SCP is the Mobile Positioning Center (MPC). The MPC selects PDE to determine the position of a subscriber. In ALLTEL's solution, the functionality of the Coordinate Routing Database (CRDB) - providing a translation between a given position expressed as a latitude and longitude and a string of digits identifying an Emergency Services Zone (ESZ) - will be hosted on the MPC. ALLTEL is planning to co-locate the PDE with the MPC, centralized in ALLTEL's Signal System # 7 (SS7) Network. Additionally, this solution requires support for specific parameters in ANSI-41 messages, as defined in J-STD-036, in all serving MSCs. ALLTEL has entertained proposals for such a solution from *Alcatel*, *Lucent*, *Motorola*, *Nortel*, and *Telcordia*.

The technology selection presented herein is based on supplier information and general market research (available as of this date) and is subject to change. Field trials of the solutions of ALLTEL's choice will be conducted in different radio coverage environments during the first half of 2001 with available equipment.

VII. Testing and Verification

ALLTEL will use the guidelines in OET Bulletin No. 71,[17] provided by the Commission, to determine the accuracy of its ALI solution.

VIII. Implementation Details and Schedule

ALLTEL assures the Commission that it is currently working with both infrastructure and handset vendors to ensure the availability of products as well as the interoperability of the mulit-vendor products in its network with the full intention of meeting the Commission's timeline for implementation of a handset-based solution. At this juncture, however, and despite repeated requests, no vendor, has provided ALLTEL with a commitment to provide either handsets or network equipment/software in a timeframe which would permit ALLTEL to deploy Phase II capability network-wide in a manner consistent with the established Commission timeframes.[18] See, for example, the communications attached hereto as Appendices B-D.

[17] Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems, OET Bulletin No. 71, March 31, 2000.

[18] ALLTEL will continue to diligently work toward meeting the Commission's established deadlines for handset-based solutions, but is constrained to note that despite its best efforts, the availability of both network elements and handsets from vendors may prevent strict compliance. Consequently, ALLTEL reserves the right to seek such limited waivers of the Phase II deadlines as may be necessary to deploy the technology of its choice. It is ALLTEL's firm belief that a bit more time is justified where needed to deploy a superior technology. The Commission, although clearly directing licensees toward strict compliance with its deadlines, also specifically contemplated that limited waivers might be needed by carriers. See, E-911Fourth Memorandum Opinion and Order at paras. 42-45.

Hardware	Planned General Availability	ALLTEL Planned Installation[19]
MPC Platform	Today	2Q 2001
PDE Platform	2Q 2001	2Q 2001

Software[20]	Planned General Availability	ALLTEL Planned Installation[21]
MPC	3Q 2001	3Q 2001
PDE	3Q 2001	3Q 2001
Lucent MSC	June 2001	4Q 2001
Nortel MSC	November 2001	2Q 2002
Motorola MSC	February 2002	3Q 2002

The following features are needed to meet J-STD-036 compliance on Lucent Network Equipment deployed in ALLTEL's network:[22]

- FID 3581.0 – MSC E911 feature in Release 16.1 with scheduled availability in March 2001.
- FID 3581.1 – CDMA Network Enhancements for geo-location in Release 16.1 with scheduled availability in March 2001.
- FID 3581.2 – CDMA Network Enhancements for geo-location services over Traffic Channel, currently in Release 17.0 with scheduled availability in June 2001.

The Nortel Networks E911 core network software solution for the DMS MTX switch will be included in MTX10, which has a planned general availability in November 2001 for CDMA.[23] Feature FR4409 will be available on Motorola's system software release S16.1, scheduled for first deployment in a single commercial U.S. market in December 2001. The software will be Generally Available (GA) in February 2002.[24]

Before deploying a solution, ALLTEL will conduct interoperability tests for each solution to ensure reliability and quality of service. The interoperability tests are expected to last 2-3 months. After verification of the solution, ALLTEL expects the general timeframe for initial deployment to be between 2-9 months given the need to coordinate

[19] The dates for planned installation refer to laboratory environment.

[20] ALLTEL will install non-GA software for testing purposes only at earlier dates, as software becomes available. A full network deployment of a switch software release will usually take 6-9 months to complete.

[21] The dates for planned installation refer to laboratory environment.

[22] Appendix B, Letter from Lucent Technologies on E911 (J-STD-036) compliance.

[23] Appendix C, Letter from Nortel Networks on E911 core network software.

[24] Appendix D, Letter from Motorola on EMX Feature to Support ALLTEL's E911 Implementation.

various implementation matters with the local PSAPs, including verification as to whether the PSAP is in fact capable of receiving the ALI data.

Specific deployment schedules may also be affected by other planned network upgrades. The deployment of ALLTEL's preferred solution is dependent on J-STD-036 and ANSI-41 messaging. ALLTEL is currently migrating to ANSI-41, which is expected to complete its planned rollout by the end of 2001. Additional upgrades next year are also being made to ALLTEL's network to comply with the Communications Assistance for Law Enforcement Act of 1994 (CALEA). ALLTEL will work with each PSAP to comply with the E911 Phase II request to ensure deployment in a timely fashion.

ALLTEL distributed a request for ALI-capable handset to several handset vendors in mid-July 2001. Vendor responses indicates that general availability of such handsets is not scheduled until 1Q 2002 and no vendor will commit to delivery schedules within the timeframes established by the Commission for deployment.

IX. PSAP Interface

As described in J-STD-036, the interface between the MPC and the Emergency Services Message Entity (ESME) is defined as E_2. ALLTEL has been involved in specifying the interface requirements for steering a Public Safety Answering Point (PSAP) Automatic Location Identification (ALI) query from an Emergency Service Provider's ALI system to a Mobile Positioning Center (MPC). Submitted to TIA TR 45.2 AHWS, ALLTEL supports NENA proposal[25] that utilize Extensible Markup Language (XML) to implement the Emergency Service Protocol (ESP) for a Non Call Associated Signaling (NCAS) implementation

Besides supporting this interface, a PSAP will be required to acquire software to extract the latitude and longitude coordinates from the message received along with mapping software to translate the received information to a street or highway.

X. Existing Handsets

ALLTEL has several programs targeted towards increasing the penetration of digital handsets in its total subscriber base, such as rebates or generous allowances to encourage trade-in of non-capable handsets, including the "Always Up2Date Guarantee" initiative where ALLTEL will analyze customers' phone usage every six months and notify them if there is a better rate plan available.[26] The guarantee also ensures customers receive cash credit toward a new phone every two years. These programs will be expanded and adopted in the hope of providing for rapid deployment of GPS capable handsets in a manner consistent with the Commission's deployment and penetration requirements

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[25] NENA 03-XXX Draft, Recommendations for the Implementation of the Wireless Emergency Service Protocol for the E2 Interface, October 10, 2000.

[26] ALLTEL Press Release, "ALLTEL wants to keep customers' phones, rate plans 'Always Up2Date'," October 10, 2000.

XI. Location of Non-Compatible Handsets

ALLTEL is currently working with the infrastructure vendors to determine the best possible methodology to locate non-compatible handsets, such as roamers. One possible method is to use as part of the solution, the optional parameters in J-STD-036, which increases the accuracy with which non-GPS capable handsets may be located. It is not ALLTEL's goal to limit the accuracy for roamers to Phase I accuracy and ALLTEL will continue to evaluate new technologies, such as advances in Forward Link Triangulation (FLT),[27] to improve the accuracy for non-compatible handsets and roamers.

XII. Other Information

See attachment Appendix A for PSAP Phase I and Phase II requests.

Respectfully submitted,

ALLTEL Communications, Inc.

By: _____

Glenn S. Rabin

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Dated: November 9, 2000

[27] *Ex Parte* filing by Sprint PCS, July 11, 2000.

Appendix A.1 Phase I Requests

The list includes received request from Counties for E911 Phase I as of November 6, 2000.

Alabama
BARBOUR; BESSEMER, CITY (JEFFERSON CTY); BIBB; BIRMINGHAM CITY (JEFFERSON CTY); BUTLER; CLARKE; DALE; ELMORE; ESCAMBIA; FAIRFIELD, CITY OF (JEFFERSON CTY; HENRY; HOMEWOOD, CITY OF (JEFFERSON CTY); HOOVER, CITY (JEFFERSON CTY); IRONDALE, CITY (JEFFERSON CTY); JEFFERSON; MONROE; MONTGOMERY; MONTGOMERY, CITY OF (JEFFERSON CTY); MOUNTAIN BROOK, CITY (JEFFERSON CTY); SHELBY; TALLAPOOSA; TARRANT, CITY OF; TUSCALOOSA; VESTAVIA HILLS, CITY OF (JEFFERSON CTY); WILCOX
Arkansas
BENTON; CRAWFORD; JACKSONVILLE, CITY OF; LITTLE ROCK, CITY OF; N LITTLE ROCK, CITY OF; POPE; SHERWOOD, CITY OF; WASHINGTON
Arizona
MARICOPA; PIMA
Colorado
LA PLATA; MONTEZUMA; OURAY
Florida
ALACHUA; BAY; CITRUS; DUVAL; FRANKLIN; GADSDEN; GULF; HAMILTON; HENDRY; HILLSBOROUGH; JACKSON; LEON; MARION; NASSAU; PASCO; PINELLAS; SARASOTA; SUMTER; WAKULLA; WASHINGTON
Georgia
CAMDEN; COLQUITT; DOUGHERTY; EFFINGHAM; JEFFERSON; LOWNDES; MCDUFFIE/GLASCOCK; MITCHELL; MONROE; TATTNALL; TIFT; WASHINGTON; WORTH
Iowa
DUBUQUE; LINN
Kentucky
BOYD
Missouri
GREENE; STONE
North Carolina
ANSON; BEAUFORT; BERTIE; BLADEN; BRUNSWICK; BURKE; CABARRUS; CALDWELL; CAMDEN; CARTERET; CARY (WAKE COUNTY); CASWELL; CATAWBA; CHATHAM; CHOWAN; COLUMBUS; CORNELIUS, CITY (MECKLENBURG CTY); CUMBERLAND; CURRITUCK; DARE; DAVIDSON; DAVIE; DUNN, CITY (HARNETT COUNTY); DUPLIN; DURHAM; FAYETTEVILLE, CITY OF; FORSYTH; FRANKLIN; GASTON; GRANVILLE; HALIFAX; HARNETT; HAVELOCK, CITY (CRAVEN COUNTY); HIGHPOINT, CITY OF; HOKE; HYDE; IREDELL; JACKSONVILLE, CITY OF; JOHNSTON; LEE; LENOIR; MARTIN; MECKLENBURG; MONTGOMERY; MOORE; NASH; NEW BERN, CITY; NEW HANOVER; OAK ISLAND (BRUNSWICK CTY); ONSLOW; PASQUOTANK; PERSON; PINEVILLE, CITY OF; ECKLENBURG CTY); RANDOLPH; REIDSVILLE, CITY (ROCKINGHAM CTY); RICHMOND; ROBERSON; ROCKINGHAM (CITY OF REIDSVILLE); ROWAN; SAMPSON; SCOTLAND; SHELBY, CITY; LEVELAND CTY); STANLY; STOKES; TARBORO, CITY OF; UNC-CHAPEL HILL (ORANGE COUNTY); UNION; WAKE; WASHINGTON, CITY (BEAUFORT CTY); WATAUGA; WAYNE; WILSON; WINSTON-SALEM, CITY OF
Nebraska
CUSTER
New Mexico

SAN JUAN
Ohio
SANDUSKY; SENECA; VAN WERT
South Carolina
ABBEVILLE; AIKEN; ANDERSON; BARNWELL; BEAUFORT; BERKLEY; CHARLESTON; CHEROKEE; CHESTER; CLEMSON, CITY; COLLETON; DARLINGTON; DILLON; DORCHESTER; EDGEFIELD; FAIRFIELD; FLORENCE; GEORGETOWN; GOOSE CREEK, CITY; GREENVILLE; GREENWOOD; HANAHAN; HORRY; KERSHAW; LANCASTER; LAURENS; LEXINGTON; MARION; MARLBORO; NEWBERRY; OCONEE; ORANGEBURG; PICKENS; RICHLAND; SPARTANBURG; SUMMERVILLE, CITY; SUMTER, CITY (SUMTER CTY); UNION; YORK
Tennessee
CARTER; COCKE; GREENE; HAMBLEN; HAWKINS; JEFFERSON; JOHNSON; SEVIER; SULLIVAN; UNICOI; WASHINGTON
Texas
EL PASO; LONGVIEW, CITY; MCLENNAN; SMITH
Virginia
ALBEMARLE, CHARLOTTESVILLE, U-V; BEDFORD, CITY; CHESAPEAKE, CITY OF; CHESTERFIELD; CULPEPER; DANVILLE, CITY OF; GALAX, CITY OF; HAMPTON, CITY OF; HENRICO; HENRY; LYNCHBURG, CITY OF; NEWPORT NEWS, CITY OF; NORFOLK, CITY OF; PITTSYLVANIA; PORTSMOUTH, CITY OF; POWHATAN; RICHMOND, CITY OF; SUFFOLK, CITY OF; VIRGINIA BEACH, CITY OF; WASHINGTON; YORK
West Virginia
BOONE; CABELL; KANAWHA; LINCOLN; LOGAN; PUTNAM; WAYNE; WOOD

Appendix A.2 Phase II Requests

The list includes received request from Counties for E911 Phase II as of November 6, 2000.

Arkansas
WASHINGTON

Appendix B

October 31, 2000

To: Bjorn Hjelm

Subject: E911 (J-Std-036)

The following features are needed to meet J-Std-036 compliance on Lucent Network Equipment deployed in ALLTEL's network.

1. FID 3581.0 - MSC E911 feature: This feature is currently in Release 16.1 and is scheduled to be available in March 2001.
2. FID 3581.1 – CDMA Network Enhancements for geoloc: This feature is currently in Release 16.1 and is scheduled to be available in March 2001.
3. FID 3581.2 – CDMA Network Enhancements for geloc services over Traffic Channel: This feature is currently in Release 17.0 and is scheduled to be available in June 2001.

If there are any questions or concerns, please give me a call.

Sincerely,

Bob Gutschenritter
Sales Director – Lucent Technologies
(w) 501-569-5582
(m) 201-572-3435

Appendix C

October 19, 2000

Dan Wojciechowski
ALLTEL Communications
One Allied Drive
Little Rock, AR 72202

RE: E911 core network software

Dear Dan;

This letter is written to provide your company with information to use in its E911 filing to the Federal Communications Commission (FCC) due on November 9, 2000.

Nortel Networks is developing standards compliant E911 core network software to support either network based or handset based location solutions. The Nortel Networks E911 core network software solution for the DMS MTX switch will be included in MTX10, which has a planned general availability in November 2001 for CDMA. Nortel Networks is not developing the location technology itself.

In addition to the core network software included in the MTX10 generic, an Mobile Positioning Center(s) and Position Determining Entity(ies), designed in accordance with the J-STD-036, must be integrated into a carrier's network in order to supply location information to a Public Safety Answering Point (PSAP).

Nortel Networks held a conference call with the FCC to point out the limited ability of Nortel Networks to support carriers responding to PSAP requests for location service prior to October 1, 2001. A copy of the ex parte statement summarizing the conference call is attached. Your company may want to reference the ex parte in its November 9 filing.

If you should have any questions, please contact me at (972) 684-2492.

Sincerely,

Mark Whitfill
Sales Manager

Enc

Appendix D

October 30, 2000

Mr. Dan Wojciechowski
Director – Wireless Network Planning
ALLTEL Communications
One Allied Drive
Little Rock, AR 72202

Re: EMX Feature to Support ALLTEL's E911 Implementation

Dear Dan:

Based on discussions with you and your team, it is my understanding that ALLTEL has chosen Assisted GPS (AGPS) as the implementation for E911 Phase II compliance. After reviewing the requirements of your third party vendor to connect to the Motorola equipment in your network, I can offer feature FR4409 that provides the appropriate trigger interfaces. There is still one outstanding network scenario relating to the handling of dissimilar treatment of call control during an intersystem handoff during an E911 call. As you know, we are working with your third party vendor to help them meet the requirements to resolve this issue. Once complete, I believe we will reach the level of compatibility required by ALLTEL.

Feature FR4409 will be available on Motorola's system software release S16.1, scheduled for first deployment in a single commercial U.S. market in December 2001. The software will be Generally Available (GA) in February 2002.

Although I understand ALLTEL has decided to use AGPS, Motorola is planning to have a network overlay solution available by the end of the second quarter of 2001.

If I can be of further assistance in this matter, please feel free to call me at 847-435-7290.

Regards,

Fred Gabbard
Motorola
Key Account Manager
1701 Golf Road, Tower 1
Rolling Meadows, IL 60008